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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Wolfgang RUF et al.

Group Art Unit 1731

Serial No : 09/978,041

Examiner: K. Hastings

Filed : October 17, 2002

For : LAMELLA OF A HEADBOX OF A PAPER, CARDBOARD, OR TISSUE MACHINE

APPEAL BRIEF

Commissioner For Patents
PO Box 1450,
Alexandria, Virginia 23313-1450

Sir:

This appeal is from the Examiner's Final rejection of January 15, 2003. Appellant filed a Notice of Appeal on April 11, 2003 and is filing this Appeal Brief with a request for a one-month extension of time extending the Appeal Brief due date from June 11, 2003 to July 11, 2003.

The requisite fee under 37 C.F.R. 1.17(c) in the amount of $ 320.00 for the filing of the Appeal Brief, as well as the requisite fee under 37 C.F.R. 1.17(a)(1) in the amount of $110.00 for the filing of the one-month extension of time, is being paid by check, submitted herewith. However, if for any reason the necessary fee is not associated with this file, the Commissioner is authorized to charge the fee for the Appeal Brief and any necessary extension of time fees to Deposit Account No. 19 - 0089.

This appeal brief is being submitted in triplicate, pursuant to 37 C.F.R. 1.192(a).

A. REAL PARTY IN INTEREST

The real party in interest for the invention is Voith Paper Patent GmbH of Heidenheim, Germany by an assignment recorded in the U.S. Patent and Trademark Office in this Application No. 09/978,041 on October 17, 2001 at Reel 012267 and Frame 0299.

B. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences which would directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

C. STATUS OF CLAIMS

Claims 17-19, 43-45, 51 and 52 stand finally rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 4,617,091 to RODAL et al. (hereinafter RODAL) in view of Applicant's Admitted Prior Art (hereinafter AAPA), as necessary with U.S. Patent No. 4,566,945 to EWALD et al. (hereinafter EWALD).

Claims 1-16, 20-42, 46-50, 53 and 54 stand finally rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 4,617,091 to RODAL et al. (hereinafter RODAL) as necessary in view of Applicant's Admitted Prior Art (hereinafter AAPA), and further in

view of U.S. Patent No. 5,902,642 to HORIKI et al. (hereinafter HORIKI).

Claims 15, 16, 41 and 42 stand finally rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 4,617,091 to RODAL et al. (hereinafter RODAL) as necessary in view of Applicant's Admitted Prior Art (hereinafter AAPA), and U.S. Patent No. 5,902,642 to HORIKI et al. (hereinafter HORIKI), and further in view of U.S. Patent No. 4,566,945 to EWALD et al. (hereinafter EWALD).

D. STATUS OF AMENDMENTS

The response to the Final Official Action filed on March 17, 2003 has been considered as indicated in the Advisory Action mailed on March 31, 2003. No amendment, other than the aforementioned response, has been filed following the final rejection.

E. SUMMARY OF INVENTION

By way of one non-limiting examples, the invention provides for a lamella that can be used in a headbox of a paper making machine. Thus, Figure 1 schematically illustrates a sectional view of a headbox 1, which includes a feeding device 2 for feeding a fibrous stock suspension 3. Feeding device 2 is embodied or formed as a crosswise dispersing pipe 4, however, it may include a central disperser having feeding pipes as well. Headbox 1 is further provided with a device for producing micro-turbulences (i.e., a "turbulence

generator") 5 across a width of the machine, with a pre-chamber 6 arranged across the width of the machine, and arranged upstream, relative to a flow direction S (arrow), of the fibrous stock suspension 3. Accordingly, turbulence generator 5 can include a multitude of lines and columns next to one another and variously structured turbulence pipes 5.2 positioned above one another. In flow direction S (arrow) of fibrous stock suspension 3 downstream from turbulence generator 5, a nozzle 7 across the width of the machine is provided for dispersing fibrous stock suspension 3 between two wires (i.e., lower wire 8.1, upper wire 8.2) of a gap former 9, which is not shown in greater detail. In another embodiment, fibrous stock suspension 3 may be dispersed onto only one wire of a continuous wire or hybrid former. Two lamellae 10.1 and 10.2 across the width of the machine are provided in nozzle 7 of headbox 1. See paragraph [0052] of the instant Specification.

According to the invention, the two lamellae 10.1 and 10.2 are constructed of at least one high-performance polymer 11, have high stability, high heat resistance, and good to very good resistance to alkaline solutions and/or acids. The high-performance polymer 11 can have a tensile strength R_m (DIN 53455) in the range of about 50 N/mm^2 to about 150 N/mm^2, preferably about 70 N/mm^2 to about 110 N/mm^2, and a breaking elongation A_s (DIN 53455) in the range of about 20 % to about 80 %, preferably about 30 % to about 60 %. Furthermore, high-performance polymer 11 may have a modulus of elasticity E (DIN 53457, ISO 527-2) in the range of about 500 N/mm^2 to about 10,000 N/mm^2, preferably about 1,000

N/mm^2 to about 5,000 N/mm^2. See paragraphs [0053] and [0054] of the instant Specification.

Moreover, the high-performance polymer 11 can have an impact strength when notched (ISO 179) of about 40 kJ/m^2 to about 100 kJ/m^2, preferably about 45 kJ/m^2 to about 90 kJ/m^2, in order to allow the connection of lamellae 10.1 and 10.2 to turbulence generator 5 to be constructed in a smaller fashion. In order to decisively improve the properties of lamellae 10.1 and 10.2 regarding moisture and water (hydrolysis resistance), the high-performance polymer 11 may have a moisture acceptance FA (ISO 62) in the range of about 0.05 % to about 2 %, preferably about 0.2 % to about 1.2 %. See paragraphs [0055] and [0056] of the instant Specification.

In order to withstand cleaning, the high-performance polymer 11 of lamellae 10.1 and 10.2 may have a heat resistance WB (DIN 59461) in the range of about 120°C to about 230°C, preferably about 170°C to about 220°C, and a good to very good resistance to alkaline solution. With these values, it is possible for the headbox 1 to be cleaned by a "boil out" process, i.e., the presence of temperatures in the range of about 100°C and, simultaneously, also allows for the use of sodium hydroxide (NaOH) of about 20%. See paragraph [0057] of the instant Specification.

In order to ensure the dimensional stability of lamellae 10.1 and 10.2 during operation as well, high-performance polymer 11 has a low swelling Q, in particular a low linear

swelling Q_L, preferably in the range of about 0.02% to about 0.2%. See paragraph [0058] of the instant Specification.

Out of the group of high-performance polymers that perform the above-mentioned requirements during operation and during cleaning of the headbox in an excellent fashion, polyphenylene sulphone (PPSU), polyether sulphone (PES), polyetherimide (PEI), and polysulphone (PSU) are recommended. The first three mentioned high-performance polymers, which were not developed until most recently, exhibit water absorption characteristics (DIN 53495) of 1.10% for PPSU; 2.00% for PES and 1.25% for PEI and heat resistance (DIN 53461) of 214°C for PPSU; 214°C for PES and 200°C for PEI, which are superior to those of PSU, i.e., 0.8% for DIN 53495 and 181°C for DIN 53461. See paragraph [0018] of the instant Specification.

Indeed, polyphenylene sulphone (PPSU), polyether sulphone (PES), polyetherimide (PEI), and polysulphone (PSU), which perform the given tasks in operation and during cleaning of a headbox in an excellent fashion are recommended among the group of high-performance polymers 11. See paragraph [0059] of the instant Specification.

Advantageously, lamellae 10.1 and 10.2 are constructed in a homogenous design made from one high-performance polymer each. The use of different high-performance polymers is certainly possible as well. Furthermore, it is discernible from Figure 1 that lamella 10.1, provided with a dull lamella end, is jointedly mounted at its end 12.1 to turbulence generator

5 and lamella 10.2, provided with a sharp lamella end, is mounted in as stationary manner to turbulence generator 5 by its end 12.2. However, in another embodiment the mounted lamella ends may be positioned in turbulence generator 5 as well, i.e., between two respective rows of turbulence pipes 5.2. See paragraphs [0060] and [0061] of the instant Specification.

In order to take into account present and future requirements of production with regard to the production amount and the like, headbox 1 is designed for jet speeds v_s (arrow) greater than about 1,500 m/s, preferably greater than about 1,800 m/s, considering aspects of hydraulics and flow technology. See paragraph [0062] of the instant Specification.

One advantage of using a high-performance polymer as the lamella material lies in the avoidance of a lamella break, even in the event of an accidental failure of the headbox pump, resulting in very high pressures between the layers in the nozzle, due to the good mechanical characteristics of the high-performance polymers. See paragraph [0067] of the instant Specification.

Figure 3a shows a schematic longitudinal sectional view of an end region 22 (i.e., free end) of lamella 10.1 according to the invention. According to the invention, lamella 10.1 is arranged to extend into a region of nozzle 7, and on its free (unmounted) end may be provided with a structure less end region 22, which provides a substantially flat (planar) surface. At the very end of end region 22, lamella 10.1 can be formed with a dull lamella end 23 having a height H of less than about 0.4 mm, preferably less than about 0.3 mm.

Moreover, lamella 10.1 can be formed with a constant height h (shown in solid lines) or formed with a decreasing height h' in suspension flow direction S (shown in dot dash lines). See paragraphs [0068] and [0069] of the instant Specification.

According to an alternative embodiment of the invention, lamella 10.1 can be arranged to extend into the region of nozzle 7, and on its free end may be provided with a structured end 22, which provides a profiled or structured surface. In this embodiment, lamella 10.1 can include a dull lamella end 23 having a height H or H' of more than about 0.5 mm in its structured free end region 22. In another embodiment, structured free end region 22 may be embodied or formed with a grooved structure 24 that is essentially rectangular and/or wedge-shaped and/or parabolic and/or essentially round with constant and/or varying depths T. See paragraph [0070] of the instant Specification.

Furthermore, at least lamella end 23 may be constructed of at least one high-performance polymer 11 (dot-dashed separation line). In this regard, lamella end 23 can extend up to about 25%, and may extend up to about 50%, of a total length of lamella 10.1. Figure 3b schematically shows three separate top views according to view arrow IIIB in Figure 3a of structured free end regions 22 of lamellae 10.1 according to the present invention. In this regard, it is apparent that free structured end regions 22 of lamellae 10.1 according to the invention may be provided with a number of grooves 24 being essentially rectangular (A) and/or wedge-shaped (B) and/or parabolic (C) and/or essentially round with

a constant and/or varying depth. See paragraphs [0071] to [0073] of the instant Specification.

In conclusion, the invention relates to a lamella that has a better expense/effectiveness ratio for all kinds of possible uses and is also better withstand different operating conditions. See paragraph [0075] of the instant Specification.

The invention encompasses other embodiments and features which are not described herein. However, all the claimed features have been explained with sufficient clarity to enable the reader to understand the invention.

F. ISSUES ON APPEAL

1. **Whether Claims 17-19, 43-45, 51 and 52 Are Improperly Rejected Under 35 U.S.C. section 103(a) as Unpatentable Over RODAL (US 4,617,091) in View of AAPA, as necessary, with EWALD (US 4,566,945).**
2. **Whether Claims 1-16, 20-42, 46-50, 53 and 54 Are Improperly Rejected Under 35 U.S.C. section 103(a) as Unpatentable Over RODAL (US 4,617,091), as necessary, with AAPA and Further In View of HORIKI (US 5,902,642).**
3. **Whether Claims 15, 16, 41 and 42 Are Improperly Rejected Under 35 U.S.C. section 103(a) as Unpatentable Over RODAL (US 4,617,091), as necessary, with AAPA and HORIKI (US 5,902,642) and Further In View of EWALD (US 4,566,945).**

G. GROUPING OF CLAIMS

The following groups of claims are considered to stand or fall together, but only for the purpose of this appeal: claim 5 stands or falls with claim 4; claim 7 stands or falls with claim 6; claim 9 stands or falls with claim 8; claim 11 stands or falls with claim 10; claim 13 stands or falls with claim 12; claim 16 stands or falls with claim 15; claims 21-25 stand or fall with claim 1; claims 27 and 47-50 stand or fall with claim 26; claim 31 stands or falls with claim 30; claim 33 stands or falls with claim 32; claim 35 stands or falls with claim 34; claim 37 stands or falls with claim 36; claim 39 stands or falls with claim 38; and claim 42 stands or falls with claim 41. The remaining claims do not stand or fall together, at least for reasons explained below.

H. ARGUMENT

1. The Rejection of Claims 17-19, 43-45, 51 and 52 Under 35 U.S.C. section 103(a) over RODAL and AAPA, as necessary, with EWALD is in Error, the Examiner's Decision to Reject These Claims Should be Reversed, and the Application Should be Remanded to the Examiner.

Reversal of the rejection of claims 17-19, 43-45, 51 and 52 under 35 USC 103(a) over RODAL and AAPA, as necessary, with EWALD is requested.

In the rejection, the Examiner asserted that RODAL teaches all of the claimed features except for a lamella having a dull end whose thickness is more than about 0.5 mm. However,

the Examiner asserted that Appellant has admitted that it is known to provide a dull end on a lamella and that, in any event, EWALD discloses a lamella with a dull end having a thickness of between 0.2 mm and 0.5 mm. Accordingly, the Examiner concluded that it would have been obvious to combine the teachings of these documents in order to render the invention obvious. On the other hand, other than asserting that such features would be well within the ordinary skill level in the art, the Examiner set forth no reason why one would be motivated to make the asserted combination of teachings.

Appellant respectfully disagrees that the above-noted claims are unpatentable over the suggested combination of documents. The Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. This burden is perhaps most succinctly stated in M.P.E.P. 706.02(j) (pages 700-16 - 700-17, July 1998), viz., after indicating that the rejection is under 35 U.S.C. §103, there should be set forth (1) the relevant teachings of the prior art relied upon; (2) the difference or differences in the claim over the applied reference(s); (3) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter; and (4) an explanation why such proposed modification would have been obvious. It is further explained that, to establish a prima facie case of obviousness, three additional criteria are necessary: (1) there must be some suggestion or motivation to modify the reference; (2) there must be a reasonable expectation of success; and (3) the prior art reference must teach or suggest all the claim limitations. Further, in

citing *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991) and *Ex parte Clapp*, 227 USPQ 972 (Bd. Pat. App. & Inter. 1985), it is stated in the M.P.E.P. that the teaching or suggestion to make the claimed invention must be found in the prior art and not be based upon the Appellants' disclosure. *M.P.E.P. 706.02(j) citing In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Appellant submits that the rejection should be reversed at least for the following reasons. First, the references themselves (RODAL and EWALD) fail to provide objective evidence supporting a conclusion of non-obviousness of the claimed subject matter. Second, there is no motivation to combine the teachings of the prior art references in the manner asserted by the Examiner.

Appellant further submits that none of RODAL, AAPA, or EWALD, or their combination, disclose or suggest, inter alia, a lamella being formed of *at least one high-performance polymer comprising a heat resistance (DIN 53461) of at least greater than 120 °C*, and said lamella including a free end arranged to extend to a region of said nozzle, wherein *said free end comprises a structured end region with a dull lamella end having a height of more than about 0.5 mm*, as recited in independent claim 17, and inter alia, a lamella formed of *at least one high-performance polymer comprising a heat resistance (DIN 53461) of at least greater than 120 °C*, said lamella including a free end arranged to extend to a region of said jet end, wherein *said free end comprises a structured end region with a*

dull lamella end having a height of more than about 0.5 mm, as recited independent claim 43. These features are simply not disclosed or suggested by the combination of these documents.

The Examiner has acknowledges that RODAL lacks any disclosure to a lamella whose free end has the recited thickness. On the other hand, the Examiner asserts that RODAL discloses using a polysulfone material in the lamella. However, the Examiner fails to appreciate the fact that RODAL relates to a laminated or composite material lamella which, contrary to the invention, would result in a lamella made of several components - thereby rendering it expensive. On the other hand, Appellant has explained, on paragraph [0007] of the instant specification, that while composite materials (such as carbon fibers) are better, they are more expensive materials. In contrast to the disclosure of this document, Appellant has provided a lamella in which a better expense/effectiveness ratio results for all possible utilizations and so that the lamella better withstands different operating conditions (see paragraph [0009]).

Moreover, while it is apparent that EWALD discloses a lamella whose free end has a thickness of between 0.010" and 0.020" (i.e., 0.25 mm to 0.51 mm), it is clear that this document is similarly directed to a laminated or composite material (i.e., graphite, see e.g., col. 4, line 46) lamella which again, contrary to the invention, would result in a lamella made of several components - thereby rendering it expensive. On the other hand, the instant

invention is directed to a lamella in which a better expense/effectiveness ratio results for all possible utilizations and so that the lamella better withstands different operating conditions (again, see paragraph [0009]).

Finally, while it may be argued by the Examiner that Appellant's has indicated, in AAPA, that a lamella with a dull end is known, it cannot properly be argued by the Examiner that such disclosure constitutes an admission that this feature, in combination with the other recited features, is not new and non-obvious. Indeed, as with the above-noted documents, the documents described in the instant specification and indicated by the Examiner to constitute an admission (i.e., DE 43 29 810 and US 5,639,352) merely disclose a lamella which is made of either a carbon fiber plastic composite or one whose tip is made of polyurethane or an iron-nickel alloy. Such language clearly does not disclose or suggest, a lamella being formed of *at least one high-performance polymer comprising a heat resistance (DIN 53461) of at least greater than 120 °C*, and said lamella including a free end arranged to extend to a region of said nozzle, wherein *said free end comprises a structured end region with a dull lamella end having a height of more than about 0.5 mm*, or a lamella formed of *at least one high-performance polymer comprising a heat resistance (DIN 53461) of at least greater than 120 °C*, said lamella including a free end arranged to extend to a region of said jet end, wherein *said free end comprises a structured end region with a dull lamella end having a height of more than about 0.5 mm.*

Appellant notes that, while both RODAL and EWALD are related to the subject matter of the instant invention, i.e., headbox lamellae, neither document teaches or suggests a structured end region, as recited in at least independent claims 17 and 43. Moreover, while Appellant's disclosure recognizes that it is known to utilize a structured end on lamellae, Appellant submit that such disclosure does not teach or suggest that it would have been obvious to universally employ a structured end on any and all lamellae.

In particular, the documents noted in the AAPA, e.g., U.S. Patent No. 5,639,352, disclose that the structured end is utilized to eliminate or reduce turbulence in the vicinity of the lamellae ends. It is noted that this turbulence arises due to a change in velocity at the lamella end, which can lead to movements and vibrations of the lamella and, therefore, disturbances in fluid flow. Thus, the noted document seeks turbulence elimination or reduction through making the lamella more flexible, damping the lamella end, or eliminating hydraulic excitation (which can be lessened by reducing the lamella thickness to less than 1 mm).

In contrast to the AAPA, both RODAL and EWALD disclose rigidly structured lamellae, which are not intended to be flexible, especially in a cross-machine direction, but instead are pivotally mounted in the region of the turbulence generator to essentially ride with the suspension flowing toward the nozzle.

Because neither RODAL nor EWALD provide any teaching or suggestion of

increasing the flexibility of the lamella, and in fact teach against such a feature, Appellant submits that it would not have been apparent to one ordinarily skilled in the art to modify either RODAL or EWALD to provide a structured end to increase lamella flexibility. Moreover, as the lamella of RODAL and EWALD are structured to go with the flow of the suspension, Appellant submits that there is no teaching or suggestion of damping the respective lamella ends, as suggested by the AAPA, and certainly no teaching or suggestion that providing a structured end on the pivoting lamella would even achieve this objective the AAPA.

Thus, as the asserted combination of documents is contrary to the express teachings of each applied document, Appellant submits that the art of record fails to provide the requisite motivation or rationale for combining the art in the manner asserted by the Examiner.

Further, Appellant notes that, while the AAPA documents fail to provide any teaching of lamella thickness (although less than 1 mm is specifically disclosed as a desired thickness for reducing hydraulic excitation), the AAPA document discloses that the flexibility of the lamella created by the grooved end is a significant factor in the reduction or elimination of turbulence. Thus, Appellant submits that it would not have been obvious to one ordinarily skilled in the art to utilize a grooved end intended to increase flexibility of the lamella of either RODAL or EWALD, which are specifically designed as rigid lamellae mounted to

pivot with the suspension flows. In other words, Appellant submits that, as the applied documents are in direct conflict with regard to flexibility/rigidity of the lamella, the applied art fails to provide the necessary motivation for combining the documents in the manner asserted by the Examiner.

Additionally, Appellant submits that it is not apparent why one ordinarily skilled in the art would increase the thickness of the RODAL lamella, particularly since there is no teaching or suggestion that increased thickness provides benefits. Moreover, Appellant submits that, as changing the lamella thickness would result in a reduction in the flow space for the suspension, the Examiner's asserted modification fails to consider adverse effects on the overall systems sought to be modified. Still further, Appellant notes that it appears contrary to logic to increase the thickness of the lamella, thereby increasing its rigidity in order to provide grooves in the lamella end to provide flexibility that is not desired by either RODAL or EWALD.

Finally, as the specific dimensions of the non-polysulphone lamella of EWALD (and the AAPA) fail to provide any motivation or rationale for modifying or structuring a polysulphone lamella (of RODAL) of significantly smaller thickness, Appellant submits that the instant combination of documents is improper and should be withdrawn. In fact, Appellant submits that the only reasonable rationale for combining the documents in the manner asserted by the Examiner is found in Appellant's own disclosure, which is a use of

improper hindsight. Accordingly, the instant rejection should be withdrawn.

Appellant reminds the Examiner of the guidelines identified in M.P.E.P section 2141 which state that "[i]n determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

As this section clearly indicates, "[o]bviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)."

Moreover, it has been established that "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) .... Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d

1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references).

Additionally, it has been held that "[a] statement that modifications of the prior art to meet the claimed invention would have been "` well within the ordinary skill of the art at the time the claimed invention was made'" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993)."

Further, in addition to the fact that the rejection should be reversed, at least for the reason that a fair combination of the above-noted documents would not have resulted in the claimed invention, as recited in the independent claims 17 and 43, several of Appellant's dependent claims provide further limitations based upon which the rejection should be reversed.

In this regard, claims 18, 19, 44, 45, 51 and 52 depend from independent claims 17 and 43, and further recite features which provide a separate basis for patentability in that the recited features are not suggested by any proper combination of these documents. In particular:

claims 18 and 44 recite that said structured region comprises grooves having at least

one of (A) at least one of essentially rectangular, wedge-shaped, parabolic, and essentially round structure, and (B) varying depth. While Appellant does not dispute that the AAPA, e.g., document US 5,639,352, discloses a lamella with grooves (see e.g., Figs. 5B, 6B and 6C), Appellant submits none of the applied documents provides the motivation to combine the grooves of the AAPA on the lamella of RODAL and/or EWALD. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents;

claims 19 and 45 recite that at least said lamella end is constructed of said at least one high-performance polymer. While Appellant does not dispute that the AAPA, e.g., document US 5,639,352, discloses a lamella whose free end can be made of polyurethane or an iron-nickel alloy (see col. 4, lines 59-62), the Examiner has not demonstrated that such materials can be said to be a high-performance polymer, much less, one with the recited property and/or physical characteristics. Moreover, Appellant submits none of the applied documents provides the motivation to combine the free end material of the AAPA on the lamella of RODAL and/or EWALD. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents;

claims 51 and 52 recite that said at least one high performance polymer comprises at least one of polyphenylene sulphone (PPSU), polyether sulphone (PES), polyetherimide (PEI), and polysulphone (PSU). While Appellant does not dispute that RODAL discloses

polysulphone (see line 18 of claim 12), the Examiner has failed to appreciate that, contrary to the invention, the lamella of RODAL uses an expensive laminate composite material. Moreover, Appellant submits none of the applied documents provides the motivation to combine the polysulphone material of the AAPA on the lamella of RODAL and/or EWALD. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents.

Thus, for all of the reasons given above, including reasons given for the reversal of the rejection of independent claims 17 and 43, reversal of the Examiner's decision to reject claims 17-19, 43-45, 51 and 52 is respectfully requested. Further, Appellant requests that the application be remanded to the Examiner for allowance.

2. The Rejection of Claims 1-16, 20-42, 46-50, 53 and 54 Under 35 U.S.C. section 103(a) over RODAL, as necessary, with AAPA and Further in View of HORIKI is in Error, the Examiner's Decision to Reject These Claims Should be Reversed, and the Application Should be Remanded to the Examiner.

Reversal of the rejection of claims 1-16, 20-42, 46-50, 53 and 54 under 35 USC 103(a) over RODAL, as necessary, with AAPA and further in view of HORIKI is requested.

In the rejection, the Examiner asserted that RODAL teaches all of the claimed features except for a lamella made of a material having at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU).

However, the Examiner asserted that HORIKI teaches material having the recited properties. Accordingly, the Examiner concluded that it would have been obvious to combine the teachings of these documents in order to render the invention obvious. On the other hand, other than asserting that the materials disclosed in HORIKI are taught as alternative materials, the Examiner has set forth no reason why one would be motivated to make the asserted combination of teachings.

Appellant respectfully disagrees that the above-noted claims are unpatentable over the suggested combination of documents. Again, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. This burden is perhaps most succinctly stated in M.P.E.P. 706.02(j) (pages 700-16 - 700-17, July 1998), viz., after indicating that the rejection is under 35 U.S.C. §103, there should be set forth (1) the relevant teachings of the prior art relied upon; (2) the difference or differences in the claim over the applied reference(s); (3) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter; and (4) an explanation why such proposed modification would have been obvious. It is further explained that, to establish a prima facie case of obviousness, three additional criteria are necessary: (1) there must be some suggestion or motivation to modify the reference; (2) there must be a reasonable expectation of success; and (3) the prior art reference must teach or suggest all the claim limitations. Further, in citing *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991) and *Ex parte Clapp*, 227 USPQ 972

(Bd. Pat. App. & Inter. 1985), it is stated in the M.P.E.P. that the teaching or suggestion to make the claimed invention must be found in the prior art and not be based upon the Appellants' disclosure. *M.P.E.P. 706.02(j) citing In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Appellant submits that the rejection should be reversed at least for the following reasons. First, the references themselves (RODAL, AAPA and HORIKI) fail to provide objective evidence supporting a conclusion of non-obviousness of the claimed subject matter. Second, there is no motivation to combine the teachings of the prior art references in the manner asserted by the Examiner.

Clearly, none of RODAL, AAPA, or HORIKI, or their combination, disclose or suggest, inter alia, a lamella formed of at least one high-performance polymer wherein said at least one high-performance polymer comprising *at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU)*, thereby resulting in a lamella formed of a material having a high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid, as recited in independent claim 1, inter alia, a lamella formed of at least one high-performance polymer having *at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU)*, whereby said at least one high-performance polymer results in a lamella having high stability, high heat resistance, and good to very good

resistance to at least one of alkaline solution and acid, as recited in independent claim 26, inter alia, a lamella formed of at least one high-performance polymer wherein said at least one high-performance polymer comprising *one of polyphenylene sulphone (PPSU), polyether sulphone (PES), and polyetherimide (PEI) having at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU)*, thereby resulting in a lamella formed of a material having a high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid, as recited in independent claim 53, and inter alia, a lamella formed of at least one high-performance polymer comprising *one of polyphenylene sulphone (PPSU), polyether sulphone (PES), and polyetherimide (PEI) having at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU)*, wherein said at least one high-performance polymer results in a lamella having high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid, as recited in independent claim 54. These features are simply not disclosed or suggested by the combination of these documents.

The Examiner has acknowledges that RODAL lacks any disclosure to a lamella having the recited material(s) and/or material properties. Nevertheless, the Examiner asserts that HORIKI discloses materials which are recited in the claims. However, the Examiner has again failed to appreciate the fact that RODAL relates to a laminated or composite material

lamella which, contrary to the invention, would result in a lamella made of several components - thereby rendering it expensive. On the other hand, Appellant has explained, on paragraph [0007] of the instant specification, that while composite materials (such as carbon fibers) are better, they are more expensive materials. In contrast to the disclosure of this document, Appellant has provided a lamella in which a better expense/effectiveness ratio results for all possible utilizations and so that the lamella better withstands different operating conditions (see paragraph [0009]).

Moreover, while it is apparent that HORIKI discloses materials which can be read on the recited material properties, it is clear that HORIKI relates to a masking member that can be used in a coating process, and has absolutely noting to do with a lamella. Indeed, the Examiner has identified no disclosure whatsoever indicating that HORIKI even mentions the worm "lamella". Accordingly, Appellant submits that HORIKI is clearly non-analogous art. Thus, on this basis alone, the rejection is entirely improper.

MPEP section 2141.01(a) explains that to rely on a reference under 35 U.S.C. 103, it must be analogous prior art. There it further explains that the examiner must determine what is "analogous prior art" for the purpose of analyzing the obviousness of the subject matter at issue. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." In

re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also In re Deminski, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992) ("A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem."); and Wang Laboratories Inc. v. Toshiba Corp., 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). This, the Examiner has not done.

Appellant emphasizes that, while RODAL discloses a lamella formed of polysulfone, independent claims 1, 26, 53, and 54 are directed to materials and/or material properties which specifically exclude polysulfone. The Examiner has applied HORIKI to correct this deficiency and cites this document for purportedly disclosing that it would be obvious to replace polysulfone material with a polyether sulfone (PES) or polyetherimide (PEI), and has asserted that it would have been obvious to form the lamella of RODAL of PES or PEI, as taught by HORIKI. However, the Examiner has clearly neglected the fact that HORIKI is directed to forming a mask to prevent paint from being applied onto, e.g., car parts, which is wholly irrelevant to the subject matter of the pending claims and to the subject matter of RODAL and AAPA, which it purports to modify. Specifically, HORIKI discloses a masking member made of engineering plastic, which admittedly can include some of the materials recited in the pending claims, but which never discloses a lamella or even paper making.

Apparently, the Examiner has failed to fully appreciate the disclosure of HORIKI. However, it is clear from a fair reading of HORIKI that it utilizes such materials because, after corona discharge treatment, their surface's affinity for paint or adhesives is increased, and because, after releasing treatment, their surface's affinity for paint or adhesives is decreased. In this manner, the mask is reusable so that portions of a number of similarly structured parts can be masked during a painting process. However, it is clear that such materials are not used to produce a less expensive and better lamella.

Further, while treatable to increase and decrease its affinity for paint and adhesives, Appellant notes that HORIKI fails to provide any teaching or suggestion as to how such materials would function in the context of a headbox with a fibrous suspension flow, as taught in both RODAL and the AAPA. In this regard, as HORIKI fails to provide any teaching or suggestion as to how the disclosed materials would function with the materials utilized by RODAL, the art of record fails to provide any teaching or suggestion that it would have been obvious to modify RODAL in the manner asserted by the Examiner.

More particularly, Appellant notes that the applied art fairly suggests only that the disclosed materials of HORIKI are suitably effective in forming paint masks, and certainly fails to teach or suggest that these materials are universally interchangeable in each and every environment of use or that these materials would be effective in the headbox of RODAL. Thus, Appellant submits that it would not have been obvious from a review of HORIKI to

substitute the lamella material disclosed in RODAL with one of the materials disclosed in HORIKI. Indeed, it should be apparent that one skilled in the art of paper making or lamella manufacture would not look to the art of coating or masking to produce a lamella which is less expensive and more useful in the paper making environment.

Thus, as none of the applied documents of record provide any teaching or suggestion with regard to the water absorption and/or heat resistance of any of the disclosed materials, it would not have been obvious to one ordinarily skilled in the art to modify RODAL in any manner based upon the water absorption and/or heat resistance characteristics of the material relative to polysulfone. In fact, Appellant submits that, while the Examiner's basis for rejection is an assumption that one ordinarily skilled in the art would seek to increase water absorption and/or heat resistance, the art of record fails to provide any teaching or suggestion on which such an assumption can be based, and that only Appellant's disclosure provides such guidance, which results in an improper use of hindsight.

Appellant further emphasizes that, as RODAL fails to note the problem identified by the inventors, it would not have been obvious to one ordinarily skilled in the art seek a material having at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) *greater than that of polysulphone (PSU)*. That is, while specifically identifying the material as polysulfone (which is specifically excluded by these claims), RODAL fails to provide any suggestion whatsoever that water absorption or heat resistance characteristics

should be considered in determining a specific material for forming the lamellae. Further, from the disclosures of the art of record, Appellant submits that it is not apparent that one ordinarily skilled would have found it obvious from either an engineering or cost perspective to modify RODAL in the manner suggested by the Examiner. In other words, as the art of record fails to provide any suggestion whatsoever for changing the material composition of the RODAL lamella, Appellant submits that the art of record is wholly deficient with regard to any reasons for modifying RODAL, other than merely for the purpose of change, which is insufficient under 35 U.S.C. § 103(a).

Further, even assuming, *arguendo*, that one ordinarily skilled in the art were to find it obvious to change the material composition of the lamella of RODAL to one disclosed by HORIKI (which Appellant submits one would not), the art of record fails to provide any teaching or suggestion that the resulting lamella would exhibit the necessary structural properties required by RODAL. In this regard, Appellant again notes that, as the only material property of PES, PEI, and PSU disclosed by HORIKI is that it can be treated to increase or decrease its affinity for paint or adhesives, the art of record fails to provide those ordinarily skilled in the art with any useful information to determine whether it would have been obvious to modify RODAL in the manner asserted by the Examiner.

Finally, Appellant notes that AAPA fails to provide any teaching or suggestion that would render the asserted combination of RODAL and HORIKI obvious. In fact, Appellant,

as discussed above, submit that it would not have been obvious to modify RODAL to include the structured end disclosed by the AAPA. In contrast to the AAPA, RODAL discloses a rigidly formed lamella that is pivotally mounted in the nozzle.

Further, in addition to the fact that the rejection should be reversed, at least for the reason that a fair combination of the above-noted documents would not have resulted in the claimed invention, as recited in the independent claims 1, 26, 53 and 54, several of Appellant's dependent claims (except claims 5, 7, 9, 11, 13, 16, 21-25, 27, 31, 33, 35, 37, 39, 42 and 47-50 which respectively stand or fall with claims 1, 4, 6, 8, 12, 15, 26, 30, 32, 34, 38 and 41 for purposes of this appeal) provide further limitations based upon which the rejection should be reversed.

In this regard, claim 2-4, 6, 8, 10, 12, 14, 15, 20, 28-30, 32, 34, 36, 38, 40, 41 and 46 depend from independent claims 1 and 26, and further recite features which provide a separate basis for patentability in that the recited features are not suggested by any proper combination of these documents. In particular:

claims 2 and 28 recite that said high-performance polymer has a tensile strength R_m (DIN 53455) in the range of about 50 N/mm^2 to about 150 N/mm^2, and a breaking elongation A_s (DIN 53455) in the range of about 20 % to about 80 %. On the other hand, the Examiner has identified no disclosure in any of the applied documents which specifically discloses a lamella material with these properties. Moreover, to the extent that a material having such

properties is disclosed in HORIKI, Appellant submits none of the applied documents provides the motivation to combine a material disclosed as being advantageous in a masking process on the lamella of RODAL and/or AAPA. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents;

claims 3 and 29 recite that said tensile strength R_m is in a range of about 70 N/mm^2 to about 110 N/mm^2, and said breaking elongation A_s is in a range of about 30 % to 60 %. Again, the Examiner has identified no disclosure in any of the applied documents which specifically discloses a lamella material with these properties. Moreover, to the extent that a material having such properties is disclosed in HORIKI, Appellant submits none of the applied documents provides the motivation to combine a material disclosed as being advantageous in a masking process on the lamella of RODAL and/or AAPA. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents;

claims 4 and 30 recite that said high-performance polymer has a modulus of elasticity E (DIN 53457, ISO 527-2) in a range of about 500 N/mm^2 to about 10,000 N/mm^2. Again, the Examiner has identified no disclosure in any of the applied documents which specifically discloses a lamella material with these properties. Moreover, to the extent that a material having such properties is disclosed in HORIKI, Appellant submits none of the applied documents provides the motivation to combine a material disclosed as being advantageous

in a masking process on the lamella of RODAL and/or AAPA. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents;

claims 6 and 32 recite that said high-performance polymer has an impact strength when notched (ISO 179) of about 40 kJ/m^2 to about 100 kJ/m^2. Again, the Examiner has identified no disclosure in any of the applied documents which specifically discloses a lamella material with these properties. Moreover, to the extent that a material having such properties is disclosed in HORIKI, Appellant submits none of the applied documents provides the motivation to combine a material disclosed as being advantageous in a masking process on the lamella of RODAL and/or AAPA. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents;

claims 8 and 34 recite that said high-performance polymer has a moisture acceptance FA (ISO 62) in the range of about 0.05 % to about 2 %. Again, the Examiner has identified no disclosure in any of the applied documents which specifically discloses a lamella material with these properties. Moreover, to the extent that a material having such properties is disclosed in HORIKI, Appellant submits none of the applied documents provides the motivation to combine a material disclosed as being advantageous in a masking process on the lamella of RODAL and/or AAPA. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents;

claims 10 and 36 recite that said high-performance polymer has a heat resistance WB

(DIN 53461) in the range of about 120°C to about 230°C. Again, the Examiner has identified no disclosure in any of the applied documents which specifically discloses a lamella material with these properties. Moreover, to the extent that a material having such properties is disclosed in HORIKI, Appellant submits none of the applied documents provides the motivation to combine a material disclosed as being advantageous in a masking process on the lamella of RODAL and/or AAPA. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents;

claims 12 and 38 recite that said high-performance polymer has a low swelling Q in a range of about 0.02 % to about 0.2 %. Again, the Examiner has identified no disclosure in any of the applied documents which specifically discloses a lamella material with these properties. Moreover, to the extent that a material having such properties is disclosed in HORIKI, Appellant submits none of the applied documents provides the motivation to combine a material disclosed as being advantageous in a masking process on the lamella of RODAL and/or AAPA. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents;

claims 14 and 40 recite that said high-performance polymer comprises at least one of polyphenylene sulphone (PPSU), polyether sulphone (PES), and polyetherimide (PEI). Again, the Examiner has identified no disclosure in any of the applied documents which specifically discloses this lamella material. Moreover, to the extent that such materials are

disclosed in HORIKI, Appellant submits none of the applied documents provides the motivation to combine a material merely disclosed as being advantageous in a masking process on the lamella of RODAL and/or AAPA. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents;

claims 15 and 41 recite that the lamella includes a free end arranged to extend to a region of said nozzle, wherein said free end comprises an structure less end region with a dull lamella end having a height less than about 0.4 mm. However, the Examiner has identified no disclosure in any of the applied documents which specifically discloses the recited lamella material properties in combination with the free end thickness. Moreover, to the extent that HORIKI discloses a material with the recited property and to the extent that RODAL discloses a lamella with a dull tip, Appellant submits none of the applied documents discloses or suggests a lamella with the recited thickness and/or material property. Additionally, none of the applied documents provides the motivation to combine any of the materials disclosed in HORIKI as being advantageous in a masking process on the lamella of RODAL and/or AAPA. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents;

claims 20 and 46 recite that said lamella is constructed of said high-performance polymer in a homogenous structure. However, the Examiner has identified no disclosure in any of the applied documents which specifically discloses the recited lamella. Moreover, it

is clear that the lamella in RODAL, rather than being homogenous, is a composite laminated structure. Nor does HORIKI even disclose a lamella, much less, one with the recited structure and material properties. Again, none of the applied documents provides the motivation to combine any of the materials disclosed in HORIKI as being advantageous in a masking process on the lamella of RODAL and/or AAPA. Again, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents.

Thus, for all of the reasons given above, including reasons given for the reversal of the rejection of independent claims 1, 26, 53 and 54, reversal of the Examiner's decision to reject claims 1-16, 20-42, 46-50, 53 and 54 is respectfully requested. Further, Appellant requests that the application be remanded to the Examiner for allowance.

3. The Rejection of Claims 15, 16, 41 and 42 Under 35 U.S.C. section 103(a) over RODAL, as necessary, with AAPA and HORIKI and Further in View of EWALD is in Error, the Examiner's Decision to Reject These Claims Should be Reversed, and the Application Should be Remanded to the Examiner.

Reversal of the rejection of claims 15, 16, 41 and 42 under 35 USC 103(a) over RODAL, as necessary, with AAPA and HORIKI and further in view of EWALD is requested.

In the rejection, the Examiner asserted that RODAL teaches all of the claimed features except for a lamella made of a material having at least one of a water absorption (DIN

53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU). However, the Examiner asserted that HORIKI teaches material having the recited properties. Moreover, the Examiner explained that EWALD discloses the recited free end thickness. Accordingly, the Examiner concluded that it would have been obvious to combine the teachings of these documents in order to render the invention obvious. On the other hand, other than asserting that the materials disclosed in HORIKI are taught as alternative materials and that EWALD teaches the recited lamella thickness, the Examiner set forth no reason why one would be motivated to make the asserted combination of teachings.

Appellant respectfully disagrees that the above-noted claims are unpatentable over the suggested combination of documents for the reasons already indicated above with regard to claims 1 and 26, from which these claims depend. Appellant further submits that the rejection should be reversed at least for the following reasons. First, the references themselves (RODAL, AAPA, HORIKI and EWALD) fail to provide objective evidence supporting a conclusion of non-obviousness of the claimed subject matter. Second, there is no motivation to combine the teachings of the prior art references in the manner asserted by the Examiner.

Clearly, none of RODAL, AAPA, HORIKI or EWALD, or their combination, disclose or suggest, inter alia, a lamella formed of at least one high-performance polymer wherein said at least one high-performance polymer comprising *at least one of a water absorption (DIN*

53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU), thereby resulting in a lamella formed of a material having a high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid, as recited in independent claim 1, inter alia, a lamella formed of at least one high-performance polymer having *at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU)*, whereby said at least one high-performance polymer results in a lamella having high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid, as recited in independent claim 26.

As discussed above, the Examiner has acknowledges that RODAL lacks any disclosure to a lamella having the recited material(s) and/or material properties. On the other hand, the Examiner asserts that HORIKI discloses materials which are recited in the claims. However, the Examiner has again failed to appreciate the fact that RODAL relates to a laminated or composite material lamella which, contrary to the invention, would result in a lamella made of several components - thereby rendering it expensive. On the other hand, Appellant has explained, on paragraph [0007] of the instant specification, that while composite materials (such as carbon fibers) are better, they are more expensive materials. In contrast to the disclosure of this document, Appellant has provided a lamella in which a better expense/effectiveness ratio results for all possible utilizations and so that the lamella better withstands different operating conditions (see paragraph [0009]).

Moreover, while it is apparent that HORIKI discloses materials which can be read on the recited material properties, it is clear that HORIKI relates to a masking member that can be used in a coating process and has absolutely noting to do with a lamella. Indeed, the Examiner has identified no disclosure whatsoever indicating that HORIKI even mentions the worm "lamella". Accordingly, Appellant submits that HORIKI is clearly non-analogous art. Thus, on this basis alone, the rejection is entirely improper.

Further, while it is apparent that EWALD discloses a lamella whose free end has a thickness of between 0.010" and 0.020" (i.e., 0.25 mm to 0.51 mm), it is clear that this document is similarly directed to a laminated or composite material (i.e., graphite, see e.g., col. 4, line 46) lamella which again, contrary to the invention, would result in a lamella made of several components - thereby rendering it expensive. On the other hand, the instant invention is directed to a lamella in which a better expense/effectiveness ratio results for all possible utilizations and so that the lamella better withstands different operating conditions (again, see paragraph [0009]).

Finally, Appellant notes that AAPA fails to provide any teaching or suggestion that would render the asserted combination of RODAL, HORIKI and EWALD obvious. In fact, Appellant, as discussed above, submit that it would not have been obvious to modify RODAL to include the structured end disclosed by the AAPA. Nor would it have been obvious to modify RODAL or AAPA in view of HORIKI since HORIKI is entirely

unconcerned with or unrelated to a lamella or paper making.

Further, in addition to the fact that the rejection should be reversed, at least for the reason that a fair combination of the above-noted documents would not have resulted in the claimed invention, as recited in the independent claims 1 and 26, several of Appellant's dependent claims (except claims 16 and 42 which respectively stand or fall with claims 15 and 41 for purposes of this appeal) provide further limitations based upon which the rejection should be reversed.

In this regard, claims 15 and 41 depend from independent claims 1 and 26, and further recite features which provide a separate basis for patentability in that the recited features are not suggested by any proper combination of these documents. In particular:

claims 15 and 41 recite that the lamella includes a free end arranged to extend to a region of said nozzle, wherein said free end comprises an structure less end region with a dull lamella end having a height less than about 0.4 mm. However, to the extent that HORIKI discloses a material with the recited property, to the extent that RODAL discloses a lamella with a dull tip and to the extent that EWALD discloses the recited thickness, Appellant submits none of the applied documents discloses or suggests a lamella with the recited thickness and material properties, i.e., a combination of these features. Additionally, none of the applied documents provides the motivation to combine any of the materials disclosed in HORIKI as being advantageous in a masking process on the lamella of RODAL and/or

AAPA and/or EWALD. Again, RODAL and EWALD relates to laminated or composite material lamella which, contrary to the invention, would result in a lamella made of several components - thereby rendering it expensive. On the other hand, Appellant has explained, on paragraph [0007] of the instant specification, that while composite materials (such as carbon fibers) are better, they are more expensive materials. Thus, absent Appellant's disclosure, there would be no reason to combine the teachings of these documents.

Thus, for all of the reasons given above, including reasons given for the reversal of the rejection of independent claims 1 and 26, reversal of the Examiner's decision to reject claims 15, 16, 41 and 42 is respectfully requested. Further, Appellant requests that the application be remanded to the Examiner for allowance.

I. CONCLUSION

For the reasons advanced above, Appellant submits that the rejections are erroneous and that the Examiner's decision to reject claims 1-54 should be reversed. Claims 1-54 patentably define over the applied art of record.

If there are any questions about this application, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,
Wolfgang RUF et al.

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July 11, 2003

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Attachment: Appendix

APPENDIX

Claims on appeal:

1. (Amended) A lamella positionable in a headbox of a web production machine, said lamella being formed of at least one high-performance polymer; and

said at least one high-performance polymer comprising at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU), thereby resulting in a lamella formed of a material having a high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid.

2. The lamella in accordance with claim 1, wherein said high-performance polymer has a tensile strength R_m (DIN 53455) in the range of about 50 N/mm^2 to about 150 N/mm^2, and a breaking elongation A_s (DIN 53455) in the range of about 20 % to about 80 %.

3. The lamella in accordance with claim 2, wherein said tensile strength R_m is in a range of about 70 N/mm^2 to about 110 N/mm^2, and said breaking elongation A_s is in a range of about 30 % to 60 %.

4. The lamella in accordance with claim 1, wherein said high-performance polymer has a modulus of elasticity E (DIN 53457, ISO 527-2) in a range of about 500 N/mm^2 to about 10,000 N/mm^2.

5. The lamella in accordance with claim 4, wherein said modulus of elasticity E is in a range of about 1,000 N/mm^2 to about 5,000 N/mm^2.

6. The lamella in accordance with claim 1, wherein said high-performance polymer has an impact strength when notched (ISO 179) of about 40 kJ/m^2 to about 100 kJ/m^2.

7. The lamella in accordance with claim 6, wherein said impact strength is in a range of about 45 kJ/m^2 to about 90 kJ/m^2.

8. The lamella in accordance with claim 1, wherein said high-performance polymer has a moisture acceptance FA (ISO 62) in the range of about 0.05 % to about 2 %.

9. The lamella in accordance with claim 8, wherein said moisture acceptance FA is in a range of about 0.2 % to about 1.2 %.

10. The lamella in accordance with claim 1, wherein said high-performance polymer has a heat resistance WB (DIN 53461) in the range of about 120°C to about 230°C.

11. The lamella in accordance with claim 10, wherein said heat resistance WB is in a range of about 170°C to about 220°C.

12. The lamella in accordance with claim 1, wherein said high-performance polymer has a low swelling Q in a range of about 0.02 % to about 0.2 %.

13. The lamella in accordance with claim 12, wherein said low swelling Q is a low linear swelling Q_L.

14. (Amended) The headbox in accordance with claim 1, wherein said high-performance polymer comprises at least one of polyphenylene sulphone (PPSU), polyether sulphone (PES), and polyetherimide (PEI).

15. The lamella in accordance with claim 1, further comprising a nozzle, and said

lamella includes a free end arranged to extend to a region of said nozzle,

wherein said free end comprises an structure less end region with a dull lamella end having a height less than about 0.4 mm.

16. The lamella in accordance with claim 15, wherein said height of said dull lamella end is less than about 0.3 mm.

17. (Amended) A lamella positionable in a headbox of a web production machine, said lamella being formed of at least one high-performance polymer comprising a heat resistance (DIN 53461) of at least greater than 120°C, and said headbox comprising a nozzle, and

said lamella includes a free end arranged to extend to a region of said nozzle,

wherein said free end comprises a structured end region with a dull lamella end having a height of more than about 0.5 mm.

18. The lamella in accordance with claim 17, wherein said structured end region comprises grooves having at least one of:

(A) at least one of essentially rectangular, wedge-shaped, parabolic, and essentially round structure, and

(B) varying depth.

19. The lamella in accordance with claim 17, wherein at least said lamella end is constructed of said at least one high-performance polymer.

20. The lamella in accordance with claim 1, wherein said lamella is constructed of said high-performance polymer in a homogenous structure.

21. The lamella in accordance with claim 1 in combination with a headbox with a sectioned fiber suspension density control, wherein said lamella is located within said headbox.

22. The lamella in accordance with claim 1 in combination with a headbox designed for a jet speed greater than about 1,500 m/s.

23. The lamella in combination with said headbox in accordance with claim 22, wherein the jet speed is greater than about 1,800 m/s.

24. The lamella in accordance with claim 1 in combination with a multi-layered headbox, wherein said lamella is integrated into said multi-layered headbox as a separating lamella.

25. The lamella in accordance with claim 1, wherein the web production machine comprises one of a paper, cardboard, and tissue machine.

26. (Amended) A headbox of a web production machine comprising:

a lamella formed of at least one high-performance polymer having at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU),

whereby said at least one high-performance polymer results in a lamella having high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid.

27. The headbox in accordance with claim 26, wherein the web production machine

comprises one of a paper, cardboard and tissue machine.

28. The headbox in accordance with claim 26, wherein said high-performance polymer has a tensile strength R_m (DIN 53455) in the range of about 50 N/mm^2 to about 150 N/mm^2, and a breaking elongation A_s (DIN 53455) in a range of about 20 % to about 80 %.

29. The headbox in accordance with claim 28, wherein said tensile strength R_m is in a range of about 70 N/mm^2 to about 110 N/mm^2, and said breaking elongation A_s is in a range of about 30 % to 60 %.

30. The headbox in accordance with claim 26, wherein said high-performance polymer has a modulus of elasticity E (DIN 53457, ISO 527-2) in a range of about 500 N/mm^2 to about 10,000 N/mm^2.

31. The headbox in accordance with claim 30, wherein said modulus of elasticity E is in a range of about 1,000 N/mm^2 to about 5,000 N/mm^2.

32. The headbox in accordance with claim 26, wherein said high-performance polymer has an impact strength when notched (ISO 179) of about 40 kJ/m^2 to about 100 kJ/m^2.

33. The headbox in accordance with claim 32, wherein said impact strength is in a range of about 45 kJ/m^2 to about 90 kJ/m^2.

34. The headbox in accordance with claim 26, wherein said high-performance polymer has a moisture acceptance FA (ISO 62) in the range of about 0.05 % to about 2 %.

35. The headbox in accordance with claim 34, wherein said moisture acceptance FA is in a range of about 0.2 % to about 1.2 %.

36. The headbox in accordance with claim 26, wherein said high-performance polymer has a heat resistance WB (DIN 53461) in the range of about 120°C to about 230°C.

37. The headbox in accordance with claim 36, wherein said heat resistance WB is in a range of about 170°C to about 220°C.

38. The headbox in accordance with claim 26, wherein said high-performance polymer has a low swelling Q in a range of about 0.02 % to about 0.2 %.

39. The headbox in accordance with claim 38, wherein said low swelling Q is a low linear swelling Q_L.

40. (Amended) The headbox in accordance with claim 26, wherein said high-performance polymer comprises at least one of polyphenylene sulphone (PPSU), polyether sulphone (PES), and polyetherimide (PEI).

41. The headbox in accordance with claim 26, further comprising a jet end, and said lamella includes a free end arranged to extend to a region of said jet end,

wherein said free end comprises an structure less end region with a dull lamella end having a height less than about 0.4 mm.

42. The headbox in accordance with claim 41, wherein said height of said dull lamella end is less than about 0.3 mm.

43. (Amended) A headbox comprising:

a lamella formed of at least one high-performance polymer comprising a heat resistance (DIN 53461) of at least greater than 120°C;

a jet end, and

said lamella including a free end arranged to extend to a region of said jet end,

wherein said free end comprises a structured end region with a dull lamella end having a height of more than about 0.5 mm.

44. The headbox in accordance with claim 43, wherein said structured end region comprises grooves having at least one of:

(A) at least one of essentially rectangular, wedge-shaped, parabolic, and essentially round structure, and

(B) varying depth.

45. The headbox in accordance with claim 43, wherein at least said lamella end is constructed of said at least one high-performance polymer.

46. The headbox in accordance with claim 26, wherein said lamella is constructed of said high-performance polymer in a homogenous structure.

47. The headbox in accordance with claim 26, further comprising a sectioned stock density control.

48. The headbox in accordance with claim 26, wherein said headbox is sized for a flow speed greater than about 1,500 m/s.

49. The headbox in accordance with claim 48, wherein said flow speed is greater than about 1,800 m/s.

50. The headbox in accordance with claim 26, wherein said lamella is arranged as a separating lamella in a multi-layered headbox.

51. The lamella in accordance with claim 17, wherein said at least one high performance polymer comprises at least one of polyphenylene sulphone (PPSU), polyether sulphone (PES), polyetherimide (PEI), and polysulphone (PSU).

52. The lamella in accordance with claim 43, wherein said at least one high performance polymer comprises at least one of polyphenylene sulphone (PPSU), polyether sulphone (PES), polyetherimide (PEI), and polysulphone (PSU).

53. A lamella positionable in a headbox of a web production machine, said lamella being formed of at least one high-performance polymer; and

said at least one high-performance polymer comprising one of polyphenylene sulphone (PPSU), polyether sulphone (PES), and polyetherimide (PEI) having at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU), thereby resulting in a lamella formed of a material having a high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid.

54. A headbox of a web production machine comprising:

a lamella formed of at least one high-performance polymer comprising one of polyphenylene sulphone (PPSU), polyether sulphone (PES), and polyetherimide (PEI) having

at least one of a water absorption (DIN 53495) and a heat resistance (DIN 53461) greater than that of polysulphone (PSU),

wherein said at least one high-performance polymer results in a lamella having high stability, high heat resistance, and good to very good resistance to at least one of alkaline solution and acid.